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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 09/215,555 | 12/18/1998 | MAKOTO SANO | 102382 | 7246 |

25944 7590 04/14/2004

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|---|---|
| SINGH, RACHNA | |
| ART UNIT | PAPER NUMBER |
| 2176 | |

DATE MAILED: 04/14/2004

19

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**BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

Paper No. 19

Application Number: 09/215,555
Filing Date: December 18, 1998
Appellant(s): SANO ET AL.

James A. Oliff
David J. Cho
For Appellant

**EXAMINER'S ANSWER**



This is in response to the appeal brief filed 2/19/04.

***(1) Real Party in Interest***

A statement identifying the real party in interest is contained in the brief.

***(2) Related Appeals and Interferences***

The brief does not contain a statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief. Therefore, it is presumed that there are none. The Board, however, may exercise its discretion to require an explicit statement as to the existence of any related appeals and interferences.

***(3) Status of Claims***

The statement of the status of the claims contained in the brief is correct.

***(4) Status of Amendments After Final***

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

***(5) Summary of Invention***

The summary of invention contained in the brief is correct.

***(6) Issues***

The appellant's statement of the issues in the brief is correct.

***(7) Grouping of Claims***

The appellant's statement regarding the grouping of claims is correct.

***(8) Claims Appealed***

The copy of the appealed claims contained in the Appendix to the brief is correct.

***(9) Prior Art of Record***

| | | |
|---|---|---|
| 5,588,095 | Dennis et al. | 12-1996 |
| 5,859,956 | Sugiyama | 01-1999 |
| 5,805,174 | Ramchandran | 09-1998 |

***(10) Grounds of Rejection***

The following ground(s) of rejection are applicable to the appealed claims:

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claim 1-6, 8-10, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dennis et al., US Patent 5,588,095, 12/24/96.

In reference to Amended Independent Claim 1, Dennis discloses a system and method of printer banding in which a printed page is broken up into horizontal segments or bands that reflect the order of objects on the printed page (compare to ***"reconstructing means for reconstructing print data for instructing contents. . .obtained by dividing the page into a plurality of regions"***). See column 1, lines 55-57. The data is stored in the system in a format known as PDL (page description language) (compare to ***"converting means for converting the data. . .in a page description language form"***). The PDL format describes the entire page in a file called a metafile. See column 3, lines 42-51. The PDL data is then transmitted to the printer engine (compare to ***"transmitting means for transmitting the page***

***description language data"***). See column 4, lines 35-45. Dennis teaches transmitting a list of bandable primitives for the entire page. Objects that cross band boundaries are divided at the band boundaries. The objects are taken in the order they are created and overlapping objects are defined by previous objects. Dennis's motivation for doing this is to save time in reconstructing data that has already been constructed. Please see columns 5-6 and figure 3. (compare to ***"wherein the reconstruction means decides, according to a type of the print data, whether the band units to be reconstructed have common data"***). Dennis further teaches that different shapes and graphical objects require different reconstruction means. See columns 6-8. In particular, Dennis addresses that shapes such as circles cannot be divided into horizontal bands easily, thus they are represented by a series of simple geometric shapes. It would have been obvious to one of ordinary skill in the art at the time of the invention to select a predetermined method of reconstruction since it was common at the time for print data to consist of various types of data such as text and graphic objects as taught by Dennis. It would have been obvious to one of ordinary skill in the art at the time to incorporate a reconstructing, converting, and transmitting means in regards to print data since it was well-known in the art to convert page data into a PDL format and transmit it to the printer.

In reference to claim 2, Dennis discloses a storage means for storing the print data. The entire set of banded primitives is sent to a printer which stores the file in the memory of the printer. The host computer processes the metafile to convert the data into PDL as the file is stored in memory. See column 4, lines 14-44. It would have

been obvious to one of ordinary skill in the art to include a graphics library in an image processing apparatus to generate data reconstructed in the band units from the content stored in memory as taught by Dennis since a metafile transfers print data to the printer in band units which is also the function of the graphics library.

In reference to claim 3, Dennis discloses an image processing apparatus including a printer engine and storage means for reconstructing and converting the page data. The printer engine comprises the band divider which contains bandable primitives. The host computer transfers the metafile from the metafile storage area to the printer. Thus the printer stores the print data from the metafile and retrieves it once the band units are read and converted into PDL.

In reference to claim 4, Dennis's apparatus analyzes objects that are drawn over two or three bands. These objects are then divided into different bands. See column 5, lines 12-65. It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate objects across plural bands since it was common in the art at the time to band across multiple band regions.

In reference to claim 5, Dennis discloses a system in which data can be divided into horizontal bands include bit-maps, character fonts, and shapes. See column 6, lines 52-56 and column 7, lines 1-10.

In reference to claims 6, 8, and 9, Dennis discloses a system in which a set of bandable primitives are transmitted to the printer. A primitive includes alphanumeric characters (text) or graphic objects such as lines and rectangles. See column 3, lines 15-30. While Dennis does not explicitly disclose an approximation to curves with a

plurality of straight lines, Dennis does discloses that it is well-known in the art to use various techniques for determining the point of intersection of an object and a band boundary can be determined for any object through the use of simple geometry and mathematics. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize approximation to curves with a plurality of straight lines in order to determine the banding regions for curves since it determines the intersection points and boundaries.

In reference to claim 10, Dennis does not explicitly disclose a detecting and determining means; however, Dennis does disclose a task sequence list in which the various bands of print data are stored. The task sequence list is sent to the printer where for each band is converted. The list aids in maintaining a certain order of the objects in the print data. It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate a determining means for checking to see whether the print data is reconstructed since it was common at the time to provide a list of the print data that was banded.

In reference to claim 16, Dennis discloses a system and method of printer banding in which a printed page is broken up into horizontal segments or bands that reflect the order of objects on the printed page (compare to ***"reconstructing means for reconstructing print data for instructing contents. . .obtained by dividing the page into a plurality of regions"***). See column 1, lines 55-57. The data is stored in the system in a format known as PDL (page description language) (compare to ***"converting means for converting the data. . .in a page description language***

***form"***). The PDL format describes the entire page in a file called a metafile. See column 3, lines 42-51. The PDL data is then transmitted to the printer engine (compare to ***"transmitting means for transmitting the page description language data"***). See column 4, lines 35-45. Dennis teaches transmitting a list of bandable primitives for the entire page to identify overlapping objects across a plurality of bands. Objects that cross band boundaries are divided at the band boundaries. The objects are taken in the order they are created and overlapping objects are defined by previous objects. Dennis's motivation for doing this is to save time in reconstructing data that has already been constructed. Please see columns 5-6 and figure 3. (compare to ***"wherein the reconstruction means determines whether the objects are positioned across a plurality of the band units"***). Dennis further teaches that different shapes and graphical objects require different reconstruction means. See columns 6-8. In particular, Dennis addresses that shapes such as circles cannot be divided into horizontal bands easily. Thus they are represented by a series of simple geometric shapes. It would have been obvious to one of ordinary skill in the art at the time of the invention to select a predetermined method of reconstruction since it was common at the time for print data to consist of various types of data such as text and graphic objects as taught by Dennis. It would have been obvious to one of ordinary skill in the art at the time to incorporate a reconstructing, converting, and transmitting means in regards to print data since it was well-known in the art to convert page data into a PDL format and transmit it to the printer.

6. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dennis et al., US Patent 5,588,095, 12/24/96 as applied to claim 1 above and further in view of Sugiyama et al., US Patent 5,859,956, 1/99 (filed 3/97).

In reference to claim 7, Sugiyama discloses an image processing system in which a video image is the print data. The image data is divided into bands and stored into band memory. See column 12, lines 5-10. It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate Sugiyama's image data in the apparatus disclosed by Dennis since often the data desired to be printed is image data.

7. Claims 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dennis et al., US Patent 5,588,095, 12/24/96 as applied to claim 1 above and further in view of Ramchandran, US Patent 5,805,174, 09/08/98 (filed 10/97).

In reference to Claim 11, Ramchandran discloses scanning in which the medium of bands of images are scanned. This is done only after a full scan has been executed. See column 7, lines 16-31 and column 1, lines 24-35. Both Ramchandran and Dennis are of analogous art in the area of image processing.

In reference to claim 13, Ramchandran discloses a means with which a page description language describing objects is sent to a printer to be converted into raster data (compare to ***"receiving means for receiving page description language data; raster converting means for converting the page description language data. . .into raster data"***). See column 1, lines 14-22 and 36-47. Ramchandran also discloses a buffer for storing rasterized data. See column 4, lines 15-24. Ramchandran also

discloses a step of addressing the rasterized data from the buffer for printing. See column 7, lines 32-27. (compare to ***"a buffer for storing, in band units, the raster data. . .a printing mechanism. . .from said buffer"***). Ramchandran teaches that a language parser performs the processing of the PDL instructions. The PDL instructions are used to convert the objects into raster data, thus having a processing the page description language data according to a type of command indicated by the page description language data would have been obvious to one of ordinary skill in the art since the purpose of the page description language is to identify the objects such as shapes and text so that the raster converting means is carried out accordingly. Ramchandran also teaches that the page description language data is used to recognize commands and perform certain functions. See columns 1-2. The rest of claim 13 is rejected using the same rationale for claim 1 above. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Ramchandran's method of rasterizing print data with Dennis's method and apparatus for receiving and converting print data into PDL data since both Dennis and Ramchandran are of related technologies in image processing.

Claims 14 and 15 are rejected under the same rationale used to reject claims 1 and 13 above.

***(11) Response to Argument***

In response to Appellant's arguments, Examiner maintains that the limitations of the claimed invention in regards to claims 1-6, 8-10, and 16, are taught by the Dennis et al. reference.

Appellant argues that Dennis fails to disclose or suggest a converting means for converting data reconstructed by the reconstructing means into page description language data that is in a page description language form. Appellant's basis for the argument is that Dennis discloses that the data that is to be printed is stored within the host computer system in PDL format thus it is not converting the reconstructed data into page description language data in the image processing apparatus. Examiner maintains that Dennis teaches the claimed features because page description language format can be converted to PDL format after a reconstructing means has been performed. Dennis's system breaks up the printed page into segments/bands in the reconstruction step in order to reflect the order of the objects. Once that step is complete, the data is transferred to the printer for printing. Although the data may be stored in PDL format initially, it does not prohibit the stored data from being converted back into PDL format after the reconstructing means for the purpose of being transmitted and printed. See columns 9-10 of Dennis. The mere fact that the data originated in PDL format does not keep it from being converted back into PDL format after the reconstruction process especially since Dennis teaches these steps. See rejection above.

Appellant argues that Dennis does not teach the reconstructing means to decide whether the band units to be reconstructed have common data. In the rejections above, Examiner has cited how Dennis teaches a reconstructing means regarding common data. Dennis takes into consideration "overlapping" objects. In reference to figure 3, Dennis teaches transmitting a list of bandable primitives for the entire page. Objects

that cross band boundaries are divided at the band boundaries. The objects are taken in the order they are created and overlapping objects are defined by previous objects. Dennis's motivation for doing this is to save time in reconstructing data that has already been constructed. Please see columns 5-6 and figure 3. Common data is defined by Appellant on page 27, lines 4-14 of the specification as data such as print data that is the same image data or graphics data. Appellant further cites that the purpose of recognizing common data is "to shorten processing time and improve the efficiency of using the memory". As stated above, in reference to figure 3, Dennis does teach that "overlapping objects" require the same processing, thus recognizing those can save time in reconstructing data that has already been constructed. See column 5, lines 54-67. Thus Dennis does take into account "common data" and the proof of this can be found in figure 3 (see 108, 110, and 112 and the overlap) and further in columns 5-6. In regards to Appellant's arguments that Dennis teaches away from the invention because he "teaches a metafile creating a bit-map data for the first object and disregards any data that does not fall within the first band, creates another bit-map for the send object. . .and so forth," Examiner points out that that portion of the Dennis reference is talking about **"prior art"**, see lines 25-53. Starting on line 54, Dennis teaches how his invention is different in that objects that cross boundaries are divided at the band boundaries. Thus Dennis does teach taking into consideration band units with common data.

Appellant further argues that Dennis fails to teach "distinguishing print data according to the type of print data". Examiner disagrees. Dennis teaches that different

shapes and graphical objects (i.e. different types of print data) require different reconstruction means. See columns 6-8. In particular, Dennis addresses that shapes such as circles cannot be divided into horizontal bands easily and are represented by a series of simple geometric shapes. Thus Dennis teaches distinguishing different types of print data. Examiner specifically points out proof of this feature in column 7, lines 28-54.

In regards to Appellant's argument with respect to claims 1-6, 8-10, and 16 concerning obviousness, Examiner believes Dennis teaches that it was well-known in the art at the time of the invention for various objects such as text and graphic objects to require different reconstruction means. See column 7, lines 28-54. These objects are analogous to "print data", thus it would have been obvious to one of ordinary skill in the art at the time of the invention to reconstruct data comprises various "types" since it was well-known to take reconstruct page data and convert it into PDL format for transmission to a printer.

In regards to claim 7, Examiner maintains position in view of comments above with respect to claims 1-6.

Appellant argues with respect to claim 13, that Ramchandran does not teach a raster converting means and that he teaches away from the present invention because the present invention teaches that the banding process is performed by the host computer so that the necessity for the output apparatus to generate intermediate format data can be eliminated. Ramchandran does teach a raster converting means. Ramchandran discloses a means with which a page description language describing

objects is sent to a printer to be converted into raster data. See column 1, lines 14-22 and 36-47. See rejections above. As for Ramchandran teaching away from the present invention because the banding process is performed by the host computer in the present invention, Examiner maintains that the cited claim limitations do not cite this feature. The cited features of claim 13 simply state a raster converting means for converting PDL data into raster data.

In reference to Appellant's argument regarding obviousness, Examiner cites the following: The PDL instructions are used to convert the objects into raster data, thus having a processing the page description language data according to a type of command indicated by the page description language data would have been obvious to one of ordinary skill in the art since the purpose of the page description language is to identify the objects such as shapes and text so that the raster converting means is carried out accordingly. Ramchandran also teaches that the page description language data is used to recognize commands and perform certain functions. See columns 1-2. The rest of claim 13 is rejected using the same rationale for claim 1 above. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Ramchandran's method of rasterizing print data with Dennis's method and apparatus for receiving and converting print data into PDL data since both Dennis and Ramchandran are of related technologies in image processing.

Examiner's motivation for combining Dennis and Ramchandran stems from the fact that one of ordinary skill in the art at the time of the invention would recognize that the purpose of PDL is to identify objects such as shapes and text (as taught by Dennis)

so that the raster converting means (Ramchandran) is carried out accordingly. Moreover, both Ramchandran and Dennis are of common technologies in image processing. See rejections above.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

JOSEPH FEILD
SUPERVISORY PATENT EXAMINER

Rachna Singh
April 12, 2004

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